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C L A I M S

1. A process for operating a compression ignition internal combustion engine in combination with a catalytic partial oxidation reformer and, optionally, an exhaust gas aftertreater, wherein:

5 (a) a mixture of a first fuel and air, wherein the first fuel comprises Fischer-Tropsch derived fuel, is introduced in the combustion chamber of the engine;

(b) exhaust gas is discharged from the engine and optionally partly recirculated to the combustion chamber  
10 of the engine;

(c) a second fuel and oxygen and/or steam are supplied to the catalytic partial oxidation reformer to produce synthesis gas, wherein the second fuel comprises Fischer-Tropsch derived fuel;

15 (d) at least part of the synthesis gas is supplied to:

(i) the exhaust gas aftertreater;

(ii) the combustion chamber of the engine; or to both.

2. A process according to claim 1, wherein the first fuel and the second fuel are the same fuel.

20 3. A process according to claim 1 or 2, wherein the first fuel and the second fuel comprise at least 10% (v/v) Fischer-Tropsch derived fuel, preferably at least 50% (v/v), more preferably at least 80% (v/v), even more preferably consist of Fischer-Tropsch derived fuel.

25 4. A process according to any one of the preceding claims, wherein the Fischer-Tropsch derived fuel is a gasoil.

5. A process according to any one of the preceding claims, which is a process for operating a compression

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ignition internal combustion engine in combination with a catalytic partial oxidation reformer and a NO<sub>x</sub> abatement system as exhaust gas aftertreater, wherein the non-recirculated part of the exhaust gas and at least part of the synthesis gas are supplied to the NO<sub>x</sub> abatement system.

6. A process according to claim 5, wherein the NO<sub>x</sub> abatement system comprises a NO<sub>x</sub> trap comprising a NO<sub>x</sub> reducing catalyst and a NO<sub>x</sub> sorbent.

7. A process according to claim 6, wherein the non-recirculated part of the exhaust gas is continuously supplied to the NO<sub>x</sub> trap and the synthesis gas is intermittently supplied to the NO<sub>x</sub> trap.

8. A process according to claim 6, wherein the NO<sub>x</sub> abatement system comprises two NO<sub>x</sub> traps and wherein each trap is alternately supplied with the non-recirculated part of the exhaust gas and the synthesis gas such that one trap is supplied with the exhaust gas and the other trap with the synthesis gas.

9. A process according to claim 5, wherein the NO<sub>x</sub> abatement system comprises a NO<sub>x</sub> reducing catalyst without a NO<sub>x</sub> sorbent and the non-recirculated part of the exhaust gas and the synthesis gas are simultaneously and continuously supplied to the NO<sub>x</sub> reducing catalyst.

10. A process according to any one of the preceding claims, wherein at least part of the synthesis gas is supplied to the combustion chamber of the engine.

11. A process according to any one of the preceding claims, wherein at least part of the exhaust gas is recirculated to the combustion chamber of the engine.

12. A process according to claim 10, wherein the amount of synthesis gas supplied to the combustion chamber of

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the engine is such that the volumetric ratio of 'synthesis gas'-to-'first fuel' supplied to the combustion chamber is at most 25%, preferably at most 20%.

5 13. A process according to claim 10 and 11, wherein the amount of synthesis gas supplied to the combustion chamber and the amount of exhaust gas recirculated to the combustion chamber is such that the volumetric ratio of 'combined synthesis gas plus exhaust gas' to 'first fuel' supplied to the combustion chamber is at most 25%..

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14. A process according to any one of the preceding claims, wherein part of the synthesis gas is supplied to a fuel cell to generate electricity, preferably a solid oxide fuel cell.